

Summary of Comments on Red Hill Monitoring Well Installation Plan Addendum - R. Whittier

General Comments

The logic for replacing RHMW01 is solid since this well is in a line between the USTs and the Red Hill Shaft. It is critical that proper oil/water interface measurements can be taken to test for LNAPL. The logic for replacing OWDFMW1 is much less clear and it is questionable whether the gains of a replacement will justify the cost. The *Remedial Investigation Phase II – Red Hill Oily Waste Disposal Facility – Halawa, Oahu, Hawaii – Volume 1 Technical Report* (EarthTech, 2000) details the drilling and installation of the basal monitoring wells in the Oily Waste Disposal Basin (OWDB). Pages 2-9 and 2-12 provide a description of the five basal aquifer borings in the OWDB, Appendix C contains the geologic boring logs. For each well groundwater was not encountered until significantly below the expected depth. Once groundwater was encountered it rose up in the borehole indicating confined conditions for all wells drilled in this area. The elevation where groundwater was first encountered varied from -20 to -1 ft. msl, well below the static water level of about +20 ft. msl. The top of screen elevation for OWDFMW-1 is about +4 ft. msl, below the water table but above the confining layer. The solid rock of the confining layer is essentially a solid casing that extends below the water table preventing sampling formation water at an elevation equivalent to that of the potentiometric surface. It seems little will be gained in installing a new well to replace the existing OWDFMW-1 until the extent of the confining layer is better defined. Ensuring proper sampling of this well is likely a more suitable approach.

Specific Comments

Page 1 – Section 1

Lines 4-6; it is likely that the dense confining layer at the location of OWDFMW-1 makes the possibility of any LNAPL migration to the wellbore questionable.

Page: 5 – Section 2.2

Line 22; the regulatory agencies greatly appreciate that the rock portion of the boreholes will be continuous cored. This provides detailed information about the geology that can't be obtained any other way.

Lines 35-37; Being less than 200 ft from Halawa Stream and based on Earth Tech, 2000 there is a high probability of encountering perched water in OWDFMW1R.

Lines 38-41; Concur, the presences of a massive rock layer at OWDFMW1 makes a longer screen a very desirable option. Also, the pump suction should be placed according to the permeable zone of formation as indicated by borehole geology and the depth that groundwater was first encountered.

Page 6 - Section 2.2.1

Lines 32-34; the regulators strongly encourage the Navy to investigate methods to seal off any perched water that is encountered during the drilling of RHMW01R that will allow the installation of a well casing with a diameter of 2 inches or greater. A one-inch well is much slower to sample and more susceptible to blockage. Also, this well is needed to measure groundwater gradients. It will be very difficult to get a true vertical depth to water since the well bore is too narrow to accommodate the gyroscopic instrument that is necessary to measure deviations from vertical.

Page: 14; Section 3-3

Lines 12-15; the requirement to remove the downhole sampling pump for the monthly oil/water interface measurements is an argument to install a well with a diameter of at least 2 inches.

Page 19 – Sections 3.3.6 and 3.3.7

Lines 12-15; the suction for the OWDFMW-1R sampling pump should be located at a depth where the groundwater water was first encountered and that rock cores indicate the is most permeable saturated zone.